

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/052301 A3

(51) International Patent Classification⁷: E21B 10/42,
17/10, 10/32

LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK, SL, SY, SZ, TJ, TM, TN, TR, TT, TZ,
UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW *only*): SHELL
INTERNATIONALE RESEARCH MAATSCHAPPIJ
B.V. [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR
The Hague (NL).

(21) International Application Number:
PCT/EP2004/053125

(71) Applicant (*for CA only*): SHELL CANADA LIMITED
[CA/CA]; 400 - 4th Avenue S.W., Calgary, Alberta T2P
2H5 (CA).

(22) International Filing Date:
26 November 2004 (26.11.2004)

(72) Inventors; and

(25) Filing Language:
English

(75) Inventors/Applicants (*for US only*): SAVIGNAT, Jean-
Michel, Claude, Gaston [FR/NL]; Volmerlaan 8, NL-2288
GD Rijswijk (NL). ZIJSLING, Djurre, Hans [NL/NL];
Volmerlaan 8, NL-2288 GD Rijswijk (NL).

(26) Publication Language:
English

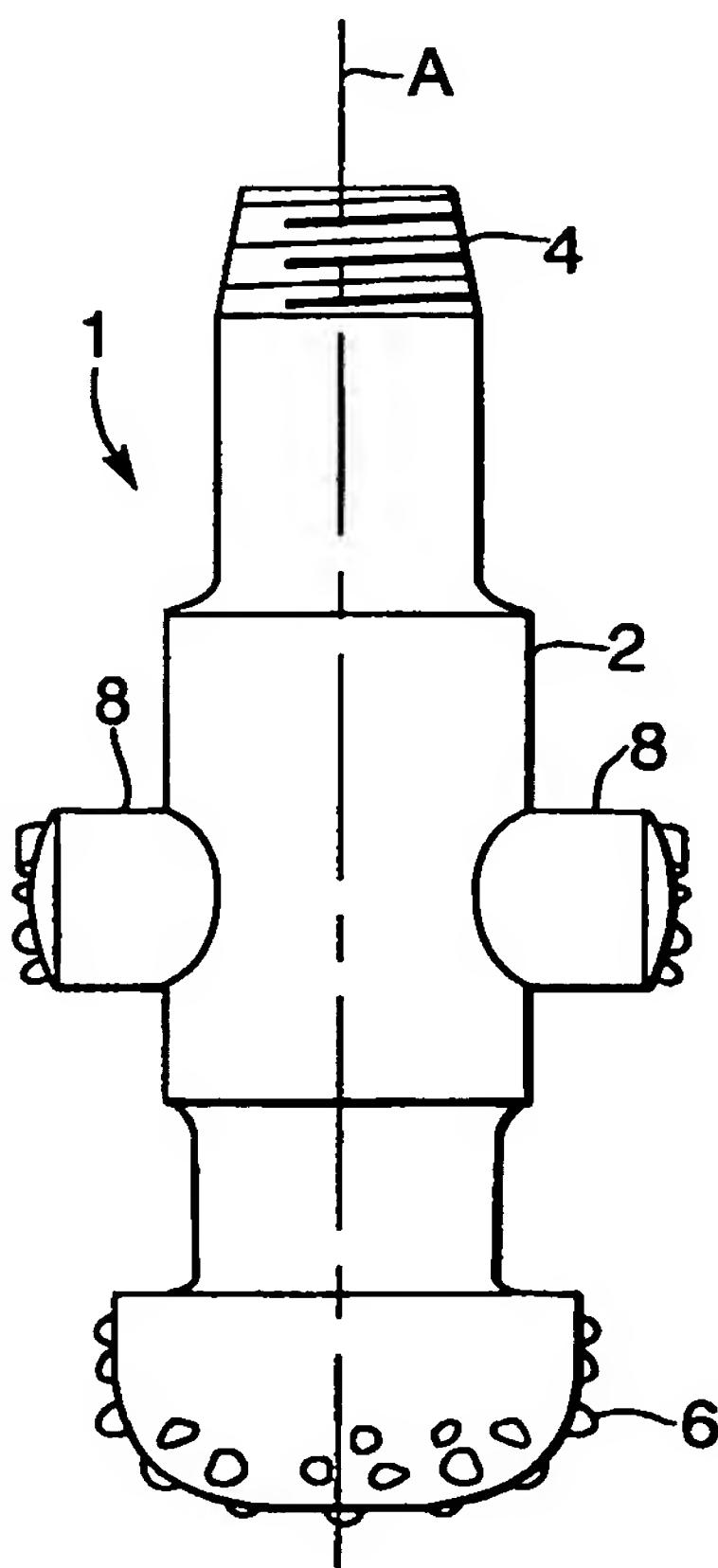
(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

(30) Priority Data:
03104435.7 28 November 2003 (28.11.2003) EP

(71) Applicant (*for AE, AG, AL, AM, AT, AU, AZ, BA, BB, BE,
BG, BR, BW, BY, BZ, CH, CN, CO, CR, CU, CY, CZ, DE,
DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,*

[Continued on next page]

(54) Title: DRILL BIT WITH PROTECTION MEMBER



(57) Abstract: A method is provided for removing a body of selected material from the interior of a casing extending into a borehole formed in an earth formation. The method comprises lowering a drill bit for further drilling of the borehole, into the casing, the drill bit having a longitudinal axis of rotation during operation, the drill bit comprising rock cutting means, at least one protection member for protecting the inner surface of the casing from contact with the rock cutting means, each protection member being adapted to remove said selected material from the interior of the casing and being radially movable towards the inner surface of the casing, and control means for applying a radially outward force of controlled magnitude to the protection member. The drill bit is rotated in the casing, and the control means is operated so as to apply said radially outward force of controlled magnitude to the protection member.

WO 2005/052301 A3



CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,

SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) **Date of publication of the international search report:**
14 July 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.